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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,594	07/31/2006	Kazuo Okano	1905-0121PUS1	2393

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EXAMINER	
WILLOUGHBY, TERRENCE RONIQUE	

ART UNIT	PAPER NUMBER
2836	

NOTIFICATION DATE	DELIVERY MODE
03/11/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/587,594	OKANO, KAZUO	
	Examiner	Art Unit	
	TERRENCE R. WILLOUGHBY	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/31/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: The Examiner believes the word "from" should be "over".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 3, recites "an electric field generated from the emitter by an electrostatic shield function is shut off." It is not understood what is meant by an electrostatic shield function is shut off. For the purpose of examination, the Examiner will interpret the claim wherein an electric field is generated from the emitter in the air supply pipe which functions as a shield body.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge (US 6,693,788) in view of Rodrigo et al. (US 5,153,811).

7. Regarding claim 1, Partridge in (Fig. 1) discloses a corona discharge ionizer which emits ions generated by corona discharge to a subject to be neutralized, comprising:

An emitter (9);

A voltage supply unit (13) which supplies voltage to the emitter (9);

An annular control electrode (15) to which control electrode voltage is applied or which is grounded to zero potential (col. 2, ll. 19-32).

Partridge does not disclose a shield body formed such as to include a cylindrical portion which cover a periphery of the emitter, wherein the control electrode is disposed in a cylindrical portion of the shield body and at a location where ions are balanced, and when a cylindrical inner diameter of the shield body is defined as Ds and an annular outer diameter of the control electrode is defined as Dc, $2Dc<Ds$ is satisfied.

However, Rodrigo et al. in (Figs. 3-4) discloses a shield body (B) formed such as to include a cylindrical portion which cover a periphery of the emitter (A), wherein the control electrode (E) is disposed in a cylindrical portion of the shield body (B) and at a location where ions are balanced, and when a cylindrical inner diameter of the shield

body (B) is defined as Ds and an annular outer diameter of the control electrode (E) is defined as Dc (col. 3, ll. 38-45 and ll. 55-65; col. 5, ll. 30-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the self-balancing ionizing device of Partridge with the air ionizer device of Rodrigo et al. to provide a highly stable and reliable balancing circuit for extending range static eliminators whose assembly is accomplished with minimal parts and without adjustment mechanisms.

Partridge and Rodrigo et al. discloses the cylindrical inner diameter of the shield body and the annular outer diameter of the control electrode as discussed above, however neither of the references explicitly disclose wherein a cylindrical inner diameter of the shield body Ds and an annular outer diameter of the control electrode is defined as Dc, 2Dc<Ds is satisfied.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to structural position/or separate the cylindrical inner diameter of the shield body (Ds) and an annular outer diameter of the control electrode (Dc) to satisfy the equation 2Dc<Ds to prevent corona traversal which would impair the efficacy of ionization balancing by the virtue of adjacency position of the grounded shield body and the discharge electrodes, since it has been held that where the general conditions of a claim are discloses in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 2, Partridge in view of Rodrigo et al. discloses the corona discharge ionizer according to claim 1, further comprising an air supply which supplies

air over the emitter toward the subject to be neutralized (Rodrigo et al., Figs. 3-4, (25) and col. 5, ll. 60-65).

Regarding claim 3, Partridge in view of Rodrigo et al. discloses the corona discharge ionizer according to claim 2, wherein the air supply unit (Rodrigo et al., Figs. 3-4, (25)) includes an air supply pipe (Rodrigo et al., Figs. 3-4, (B)) which forms a space which is covered from external other than an air supply opening, from which the emitter projects(Rodrigo et al., Figs. 3-4, (A, 10)), and which is grounded and which also functions as a shield body (Rodrigo et al., Figs. 3-4, (B)) and

An air supplier in which the air supply pipe (Rodrigo et al., Figs. 3-4, (25) and (B)) and a flow path are in communication with each other, when an interior of the air supply pipe is pressurized and air is supplied to the interior, the air supply pipe supplies air form the air supply opening toward the subject to be neutralized, and an electric field generated from the emitter in the air supply pipe which functions as a shield body (col. 5, ll. 1-41 and ll. 60-65).

Regarding claim 4, Partridge in view of Rodrigo et al. discloses the corona discharge ionizer according to any of claims 1 to 3, further comprising an insulating coating portion (Rodrigo et al., Figs. 3-4, (20)) which is coated by the emitter (Rodrigo et al., Figs. 3-4, (A, 10)) such as to cover in a substantially cylindrical form, wherein

An annular inner peripheral surface of the control electrode (Rodrigo et al., Figs. 3-4, (E)) is disposed such that the annular inner peripheral surface is in contact with the insulating coating portion (Rodrigo et al., Figs. 3-4, (20)).

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge (US 6,693,788) in view of Rodrigo et al. (US 5,153,811) as applied to claim 1 and 4 above, and further in view of Larigaldie (US 4,417,293).

9. Regarding claims 5-6, Partridge in view of Rodrigo et al. discloses the corona discharge ionizer according to any of claims 1 to 4, except for wherein the emitter is a hollow pipe and is formed at its tip end with a nozzle, and gas is injected from the nozzle.

However, Larigaldie in (Fig. 3) discloses an emitter (125, 136) is a hollow pipe (120) and is formed at its tip end with a nozzle (122), and gas is injected from the nozzle (col. 2, ll. 45-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the supersonic nozzle device of Larigaldie with the air ionizer device of Partridge and Rodrigo et al. in order to transfer ions created from the enclosure to the space zone or neutralized object at a relatively greater distance from the enclosure by virtue of speed acquired from the nozzle.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERRENCE R. WILLOUGHBY whose telephone number is (571)272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

TRW
2/20/08